

GETTY 32-27
27-55-97W

LITHOLOGIC DESCRIPTIONS

CHEVRON OIL SHALE CO. #32-27 (GETTY)
NW $\frac{1}{4}$, NE $\frac{1}{4}$, SEC 27, T5S, R97W, GARFIELD COUNTY, COLORADO

CUTTINGS DESCRIPTION

0- 12	Sandstone - yellow brown to brown
12- 22	Sandstone - yellow brown to brown
22- 32	Sandstone - yellow brown to brown, some pyrite
32- 42	Sandstone - yellow brown to brown, some pyrite
42- 52	Sandstone - yellow brown to brown, some pyrite
52- 62	Sandstone - yellow brown to brown, some shale particles
62- 72	Sandstone - yellow brown to brown, common pyrite
72- 82	Sandstone - yellow brown to brown, common pyrite
82- 92	Sandstone - light gray to light brown
92-102	Sandstone - yellow brown to light gray
102-112	Sandstone - yellow brown to light gray
112-122	Sandstone - yellow brown to light gray
122-132	Sandstone - yellow brown to light gray; common light to medium gray marlstone

132-142	Sandstone and clayey marlstone, colors as above
142-152	Sandstone - yellow brown to brown
152-162	Sandstone - yellow brown to brown
162-172	Sandstone and marlstone - yellow brown to brown sandstone, light gray marlstone
172-182	Sandstone and marlstone - yellow brown to brown sandstone, medium to dark marlstone
182-192	Marlstone with some sandstone - light gray, to yellow brown, and brown
192-202	Sandstone - light gray with some clayey marlstone
202-209	Marlstone - light gray to dark brown, some yellowish sandstone

CORE DESCRIPTION

209.65- 244.8

Sandstone and mudstone - light to medium gray and medium brown; HCl - no; chalky luster; massive to banded with common distorted bedding; common pyrite blebs in sandstone zones; fractured at 212.2, 213.0, 214.9, 220.25 - 220.8, 223.2, 224.9 - 225.6, 231.7 - 232.0, 233.15 - 233.5, 238.65, 238.9, 239.9, and 240.3; recored 243.0 - 243.35; possible bedding fractures 237.0 - bottom.

244.8 - 249.5

Sandstone with some marlstone - light to medium gray with some light brownish gray; HCl - yes; chalky with some earthy luster; banded to massive, with common distorted bedding; zone from 246.3 - 246.7 has highly distorted bedding with some kerogen-rich marlstone inclusions, turbidity features.

249.5 - 250.4

Oil shale - light to medium and dark brownish gray; HCl - no to minor; earthy to satiny luster; laminated with some distorted bedding; interbedded tuffs to 249.8; micro-faulting at 250.15 with minor displacement;

- buff colored tuff with abundant pyrite and interbedded oil shale 250.3 - 250.4; upper and lower bedding mildly distorted.
- 250.4 - 258.8 Sandstone and siltstone - light gray to light brownish gray and light brown; HCl - yes; chalky luster; banded to massive with common distorted bedding; fractured from 252.0 - 253.35 with pyrite coating; some gilsonite at bottom of fracture; large pyrite blebs at 257.5 with some pyrite throughout.
- 258.8 - 259.75 Oil shale and tuff - medium to dark brownish gray with some light brownish gray and buff; HCl - yes; satiny to vitreous and resinous luster; laminated with common distorted bedding; buff colored tuffs with interbedded oil shale to 259.35, mild distortion of bedding; light gray, blebby tuff at 259.4, moderately distorting upper and lower bedding.
- 259.75- 264.0 Marlstone and siltstone - light to medium brownish gray; HCl - yes; chalky to earthy luster; laminated to banded with some streaked, common distorted, bedding; some loop structures to 260.6; common tuff blebs and stringers throughout, locally distorting bedding; possible bedding fractures at bottom of interval.
- 264.0 - 291.8 Sandstone and marlstone - light to medium brown and light gray; HCl - minor to yes; chalky with rare earthy luster; banded to massive with some distorted lamination zones; common pyrite streaks, stringers, and blebs throughout; fractured at 266.4, 267.0, 267.75, 268.2, 270.0, 270.5, 275.25, 286.1, and 291.35; altered zone with common gilsonite 286.0 - 286.25.
- 291.8 - 300.2 Marlstone with some siltstone - light to medium brownish gray; HCl - yes; chalky to earthy luster; laminated to faintly laminated with common streaked bedding; top to 292.1 has 3 analcitized tuff zones, mildly distorting bedding; analcitized tuff at 292.7 - 292.8; zone of interbedded tuffs 293.45 - 293.9, some dolomitization, high distortion of surrounding bedding; slump zone 297.55 - 297.75; irregular light gray tuff at 297.9, mildly distorting

bedding; zone from 294.0 to bottom contains common tuff streaks and stringers.

300.2 - 300.75

Oil shale - medium to dark brownish gray; HCl - minor; vitreous luster; laminated with common distorted bedding; steel gray tuff, partially analcitized at top; common buff colored tuffs distorting bedding throughout.

300.75- 303.85

Marlstone - light to medium brown and light brownish gray; HCl - yes; earthy luster, laminated with common distorted bedding; analcitized tuff zone at 301.45, common light gray, tuff streaks and stringers throughout, medium gray sandstone with common dead oil, 302.35 - 303.25; pitting of core 303.5.

303.85- 313.9

Sandstone - medium gray; HCl - yes; chalky luster; massive; heavy pitting and solution throughout; common dead oil to 304.2; tight fracture at 306.8; open fracture 307.5 - 308.0; open fracture 311.35 - 311.55; broken along probable fractures 311.7 - 312.4. 312.0 - 312.2 - missing.

313.9 - 328.9

Siltstone and sandstone - light to medium brown; HCl - yes; chalky luster; massive to banded, with some lithologic laminations; common pyrite blebs, streaks and stringers throughout; highly distorted bedding throughout; fractured at 319.9, 320.85, 321.1, 321.9, 322.5, 324.8, and 325.2; dead oil at 328.0.

328.9 - 343.35

Sandstone - medium with some light brown; HCl - yes; chalky luster; massive with some banding; common distorted bedding; rare silty zones throughout; common pyrite streaks, stringers and blebs throughout; fractured at 329.1, 329.8, 332.0, 340.3, 341.5 and 342.6; solution vugs (0.1 ft) at 337.45 and 343.05.

343.35- 370.25

Sandstone - light to medium gray and light brown; HCl - yes; chalky luster; laminated to banded with some turbidity and slump features, common distortion of bedding; common pyrite streaks, stringers and blebs throughout; solution cavities (0.1 ft.) at 348.75; fractured at 348.2, 348.5, 350.0, 352.1, 353.1, interval from 354.0 - 360.0 has fracture sets, approximately 3-5

fractures per foot, 50° and 70°; fractured at 361.1, 361.3, 362.15 - 363.2, 364.65, and 369.15. 363.2 - 363.25 missing.

370.25- 406.65

Finegrained sandstone with some siltstone - light to medium gray with light to medium brown; HCl - yes; chalky luster; massive with some highly contorted, silty laminae; soft, clayey zones at 378.5 - 378.6 and 397.75 - 398.2; fractured at 371.8, 379.9, 382.4, 382.5, 392.0, 392.25, 393.9, 396.5, 396.7, 396.95, 403.15, and 406.2.

406.65 - 413.95

Siltstone - light brown to light brownish gray; HCl - minor; chalky luster; laminated to faintly laminated with rare loop structures and distorted bedding; analcitized tuff 409.65 - 409.95; thin, light gray tuff at 410.75; analcitized tuff at 411.35; pitting of core 411.35 - 411.75; pyrite band at 412.55, common pyrite stringers 409.0 to bottom.

413.95- 416.15

Oil shale - medium to dark brownish gray; HCl - yes; satiny to vitreous luster; laminated with common streaked and distorted bedding; interbedded, analcitized tuffs at 414.65, highly distorting upper and lower bedding; common pyrite streaks and stringers throughout; 415.95 - 416.05, buff colored tuffs with oil shale laminae; medium gray tuff at 416.1.

416.15- 425.35

Marlstone with some oil shale - medium gray to light brownish gray with some medium brownish gray; HCl - yes; earthy luster; laminated to faintly laminated with common streaked, rare distorted bedding; tuff stringer at 417.1, 418.9; light gray tuffs at 423.7 and 424.3; 424.65 - 427.85 has buff colored tuffs with oil shale laminae; 424.85 - 425.0 has rich, dark oil shale zone, mildly distorted by interbedded tuffs; some pyrite streaks and stringers throughout.

425.35- 436.6

Siltstone and marlstone - light brownish gray to light brown; HCl - minor; earthy to chalky luster; laminated with common distorted bedding, moderate to heavy breakage to 434.0; fractured at 427.1, 427.4, 427.6, 428.8, 428.9, 429.3, 429.5, 429.9, jumbled to 430.7, fractured at

431.2, 431.6, 432.2, 433.3 - 433.8; light gray tuff at 434.0; zone of analcitized tuffs 436.25 - 436.55.

436.6 - 441.8

Siltstone - light gray to light brownish gray with some medium brown; HCl - minor; laminated to banded and massive with common distorted bedding; common pyrite blebs throughout, generally associated with light gray tuffs at 437.7, 439.15, 439.7, 439.9, 439.95, 440.2, 440.6, 440.9, 441.4, 441.65, and 441.8; solution vug with pyrite at 438.85.

441.8 - 464.4

Marlstone - light to medium brownish gray; HCl - yes; earthy luster; laminated with some distorted bedding; tuff, white to light gray at 442.15; altered tuff 443.15 - 443.45; common pyrite stringers top to 448.2; zone from 448.2 - 453.6 contains some silty laminae; light gray tuffs 448.75 - 448.85; medium gray tuff at 449.15; tuff stringers 449.6, mildly distorting bedding; 450.2 - 450.85, fractures with pyrite filling; 451.95 - 452.7 has common light gray tuffs with calcite and pyrite stringers; 454.1 - 454.5 has buff-colored tuffs, altered to clay upper portion, with some oil shale laminae; fractured at 460.5 - 460.9 and 461.6 - 462.0; solution cavity with pyrite at 462.4; common light gray tuffs 462.8 to bottom; common silty laminae toward bottom..

464.4 - 490.6

Fine grained sandstone and siltstone - medium brown to light brown; HCl - minor; chalky luster; massive to banded with highly contorted silty laminae; light gray blebby tuffs at 465.15 and 465.5 - 466.5; solution boxworks with crystalline pyrite at 468.8 and 469.95; solution cavity at 471.8, 472.7; solution vugs at 473.4 and 473.5; dead oil at 474.0; solution cavity at 474.15; dead oil at 478.9 - 479.1; solution cavity with crystalline calcite at 479.4; solution cavities at 480.3 and 484.55; fractured at 474.1, 477.3, 479.4, 481.0, 485.0, 486.2, 486.3, 486.6, 488.5, 489.55, 489.8, and 490.45. 473.0 - 473.3 missing.

490.6 - 500.0

Oil shale (lean) - buff to light and medium brownish gray; HCl - yes; earthy luster; laminated with some loop structures, common distorted bedding; medium, with

some light brown sandstone zones at 491.15 - 491.5, 494.5 - 494.9, and 496.1 - 496.85; light colored crystal growths distorting bedding 491.5 - 491.85; vertical fracture from 493.35 - 497.5, minor breakage along fracture, no coating; light gray tuffs at 493.7, 493.8, 495.0; light gray tuff stringer with pyrite at 497.85; light gray tuff at 498.25; sandstone zone with tuff at 501.25 - 501.3. 493.15 - 493.35 missing.

500.0 - 514.4

Sandstone (fine grained) with common siltstone - light gray to light and medium brown; HCl - no to minor; chalky luster; massive to banded with common distorted bedding; solution cavities with associated pyrite at 500.25, 500.65, 503.6, 505.3, 507.0, and 507.6; fractured at 500.25, 504.4, 505.3, 507.25, 508.5, 508.95, 509.35, 510.7, 510.85, 511.35, 511.45, 512.7, and 513.0; analcitized tuff at 513.3, some gilsonite streaks throughout.

514.4 - 519.8

Siltstone and oil shale - buff to light and medium brownish gray; HCl - minor to yes; earthy luster; laminated with some loop structures, common distorted bedding; common light gray tuff stringers top to 515.0; microfaulted 515.4 with minor offset; irregular light gray tuff at 515.95, mildly distorting bedding; microfaulted 516.4, minor offset; light gray tuff stringer at 516.65; irregular light gray tuff, interbedded, at 516.9; irregular light gray tuff stringer at 517.95.

519.8 - 541.2

Sandstone - light to medium gray and medium brown; medium to fine grained; HCl - minor; chalky luster; massive to banded with common distorted bedding; common dead oil throughout; fractured at 520.0 - 520.2, 520.4, 521.4, 521.8; vertical fracture from 522.5 - 525.25, moderate breakage, no fracture coating; crystalline pyrite in large bleb at 523.55, solution cavity at 525.4; fractured at 529.1, 533.15, 537.2, 539.4, 540.0, and 541.0.

541.2 - 563.35

Sandstone - light to medium gray and medium brown; medium to fine grained; HCl - minor; chalky luster; massive to banded with common distorted bedding;

common dead oil throughout; fractured at 541.8, 542.1, 542.8, 543.1, 543.85, 544.2; solution cavity at 546.3; fractured at 547.25, 547.9, 553.3, 554.6, 554.75, 555.45, and 557.5; solution vug at 557.6; fractured at 558.15, 558.55, 559.55 - 559.95, 560.15, 560.95, 561.1, fractured and jumbled 561.3 - 562.0; fractured at 562.4 and 563.0; some gilsonite streaks throughout.

563.35- 569.25

Siltstone - buff to light and medium brownish gray; HCl - minor; chalky luster; massive with highly distorted slump and flowage features throughout; common medium gray tuff streaks and blebs throughout; fractured at 565.4.

569.25- 586.75

Sandstone - light to medium gray and medium brown; medium to fine grained; HCl - minor; chalky luster; massive with some highly distorted banding; fractured at 571.2; pitting 575.2 - 575.4; solution cavity 576.2 - 576.3 and 578.9 - 579.05 (some boxworks with pyrite); fractured with solution cavity at 579.35; solution zone with pyrite 580.55, fractured at 581.3, 581.6, and 582.3; solution cavity with crystalline pyrite 582.75; solution cavity with pyrite, associated with fractures 585.6 - 585.7; some gilsonite streaks throughout; common dead oil throughout. 574.7 - 575.05 missing.

586.75- 590.65

Siltstone and marlstone - light brownish gray to medium brownish gray and medium greenish brown; HCl - yes; chalky to earthy luster; some laminations, commonly banded to massive; large pyrite blebs 587.15.

590.65- 592.45

Oil shale - light, medium and dark brownish gray; HCl - minor; earthy to satiny luster; originally laminated, interval has slumped and flowed with highly irregular and distorted bedding; some tuff flowage throughout; microfaulted lower portion, minor offset.

592.45- 595.0

Siltstone and oil shale - buff to light and medium brownish gray; HCl - minor; earthy luster; some calcareous sandstone zones throughout; shattered and recemented

to 593.9 with common calcite and gilsonite; jumbled at 593.4 - 593.6 along probable fracture, vertical fracture 593.0 - 593.4; fractured 595.2 - 595.8 with moderate breakage, no fracture coating.

595.0 - 597.85

Sandstone - medium brown with some medium gray; HCl - yes; chalky luster; massive to banded with common distortion; common dead oil throughout; fractured at 596.6 and 597.15; pyrite bleb at 597.6.

597.85- 599.55

Oil shale and sandstone - medium to dark brownish gray and medium brown; HCl - minor to yes, chalky to satiny luster; laminated with massive sandstone interbedded and interfingering to 598.4; sandstone zone 598.45 - 599.1; irregular tuffs at 599.1 and 599.25 - 599.35.

599.55- 600.8

Sandstone - medium brown; HCl - yes; chalky luster; massive; fractured at 600.2 and 600.3; some silty laminae lower portion.

600.8 - 616.7

Oil shale (lean) - medium with some light brownish gray; HCl - yes; earthy luster; laminated with some distorted bedding; irregular, light gray tuff at top, mildly distorting bedding; some silty laminae at top; common hairline fractures to 601.3; 605.2 - 606.0 heavy solution, with calcite and gilsonite in fractures (?), some tuffs throughout; gilsonite stringer at 606.9; 607.75 - 608.05 heavy solution of boxwork zone with gilsonite and calcite; tuff with calcite at 608.8 - 608.95; interbedded light gray tuffs, distorting bedding 610.6 - 610.8; boxworks zone with crystalline calcite, heavy solution 611.75 - 611.95; interbedded tuffs 613.15 - 613.4; analcitized tuff 614.55; common light gray tuff stringers 614.85 - 615.6; bedding highly distorted around solution cavity at 616.15 - 616.4.

616.7 - 626.2

Oil shale (lean) - medium with some light brownish gray; HCl - yes; earthy luster; laminated with some distorted bedding; solution zone with calcite and pyrite at 616.9; very soft, light gray to white tuffs 617.3 - 617.75; light gray tuff 618.55 - 618.8, distorting lower bedding;

light gray tuff at 618.85; bedding distorted by crystal growth at 619.4, common calcite replacement with minor solution throughout; irregular light gray tuffs 620.5 - 620.9, distorting bedding; vertical fractures from 620.85 - 621.85, minor breakage, no fracture coating; irregular light gray tuffs 622.1 - 622.2, and 622.45; heavy solution and boxworks below missing interval to 624.1; irregular light gray tuffs at 624.4 and 624.85; some interbedded, distorted sands from 622.45 - bottom. 623.35 - 623.8 missing.

626.2 - 643.35

Sandstone - medium brown with some light to medium gray; HCl - minor; chalky luster; banded to massive with common distorted bedding; vertical fracture 626.6 - 627.3; fractured at 626.3; solution cavity at 628.9; fractured 631.0 - 631.4 with some solution and massive pyrite; pitting in zone 637.7 - 638.0; interval 638.0 - bottom has 5-10+ fractures per foot at 50°-70°, heavy breakage and jumbling.

643.35- 662.9

Sandstone - medium brown with some light to medium gray; HCl - minor; chalky luster; banded to massive with common distorted bedding; solution cavity at 644.4 with common pyrite; fractured at 649.15; marlstone zone 650.2 - 650.55; fractured at 657.05, 657.5, and 657.7; moderate breakage 660.0 - bottom, probable fractures; heavy pitting 660.9 - 661.4, probable altered tuff. 653.1 - 653.35 missing. 661.4 - 661.6 missing.

662.9 - 673.7

Sandstone - light to medium gray; HCl - no; chalky luster; massive; common zones of slightly calcareous, buff to light and medium brownish gray, oil shales throughout; oil shale zones are highly distorted and disarrayed, as if transported and redeposited; fractured (?) and jumbled 663.9 - 664.1; vertical fracture 665.85 - 666.45; fractured at 668.45 and 668.55; vertical fractures from 669.0 to bottom; gilsonite and pyrite in solution zone 673.05.

673.7 - 677.0

Sandstone - medium brown with some light brown and light gray; HCl - no; chalky luster; massive; some pyrite blebs and

stringers throughout; jumbled above missing interval; fractured at 675.35; solution cavity at 675.9 - 676.05, some pyrite remaining. 674.2 - 674.85 missing.

677.0 - 687.05

Sandstone - light to medium gray and medium brown; HCl - minor; massive with common, highly distorted chips and zones of oil shale; oil shale zone from 679.4 - 680.05, sandstone bands at 679.45 and 679.9; fractured at 679.0, 680.5, 680.7, 681.2, 681.85, and 682.5; jumbled at 683.2; fractured at 684.9 and 685.1; solution cavity with gilsonite and some boxworks at 686.05.

687.05-703.5

Oil shale - medium with some light brownish gray; HCl - yes; earthy luster; laminated with some distorted bedding; solution cavities associated with fractures; boxworks filled with gilsonite and calcite at 688.3 and 689.85; bands of medium brown sandstone at 688.65 - 688.8, 688.9 - 689.1, and 691.35 - 691.55; light gray tuffs (?) with gilsonite and calcite at 690.2 and 690.9; calcite band at 691.9; breakage by drilling from 692.5 to 693.0; 693.3 to 695.0 has common calcite veinlets throughout; light gray tuffs at 698.2 and 698.6; some interbedded sands 698.0 - 700.2; 700.0 - 700.1 has calcite filling of open fractures; calcite and gilsonite bleb at 702.6. 692.35 - 692.5 and 699.7 - 699.85 missing.

703.5 - 706.6

Oil shale - medium to dark brownish gray; HCl - minor; satiny to vitreous, with rare earthy luster; common streaked and highly distorted bedding; common crystal growths throughout; solution vug with some pitting in recemented zone 705.0 - 705.2; solution and pitting of recemented zone 705.5 - 705.75; fracture with oil staining 706.15.

706.6 - 711.6

Oil shale - light with some medium brownish gray; HCl - yes; earthy luster; laminated with some streaked and distorted bedding, rare loop structures; rare medium gray tuff streaks throughout.

711.6 - 732.25

Sandstone - medium brown with some light and medium gray; HCl - minor; chalky luster, massive with rare, disoriented oil shale zones; solution of soft tuff with pyrite at 713.0; fractured at 712.9, 717.2 - 717.7; 717.9, 718.1, 718.4, 718.6, 718.85, 719.5, 720.6, 722.4, 722.6, 723.1 - 723.3; vertical fracture with calcite and pyrite coating 726.0 - 727.3; some pyrite blebs and streaks throughout.

732.25 - 742.0

Sandstone - medium brown with some light and medium gray; HCl - minor; chalky luster; massive with thin oil shale zone at 735.2; jumbled and fractured 732.9 - 733.3; fractured at 733.5, 734.35, 736.65, 737.0, 737.2, 737.6, 738.1, 738.6, 738.8, 738.95, 739.4, 739.7, 739.9, 740.4, 740.5, 740.65, 740.75, 740.8, 741.0, 741.15, 741.6, and 741.8; fractures tight, moderate breakage, no fracture coating; oil stained fracture at bottom.

742.0 - 747.3

Oil shale - light, with some medium and dark, brownish gray; earthy to satiny, with rare vitreous luster; HCl - yes; laminated to faintly laminated with some streaked and distorted bedding; bedding inclined 30° from horizontal throughout interval; tightly fractured with oil staining, top to 742.5; light gray, partially dissolved tuff at 744.3 - 744.35; rich zone 745.2 - 745.4, with buff stringers; 746.3 to bottom has common calcite veinlets throughout; soft, light gray, partially analcitized tuff at 746.8.

747.3 - 757.5

Sandstone - medium brown and medium gray; HCl - minor; chalky luster; massive with some distorted light gray inclusions; vertical, calcite and pyrite filled fracture, 748.4 - 749.8; gilsonite stringer 749.4; fractured at 732.4, 732.8, and 756.2; oil shale zone, buff to light brownish gray, 755.6 - 756.05.

757.5 - 761.3

Oil shale - light to medium, with some dark, brownish gray; HCl - yes; earthy with some satiny luster; laminated with some streaked, rare distorted, bedding;

light gray tuff stringer at 758.15, partially analcitized; wavy, partially analcitized, tuff at 759.4; rich zone with buff stringers 760.4 - 760.9.

761.3 - 769.3

Oil shale - medium, with common, light brownish gray; HCl - yes; earthy luster; faintly laminated with common streaked bedding; analcitized tuff with calcite and pyrite at 761.8, mildly distorting upper and lower bedding; analcitized tuff with pyrite and calcite at 762.3, 762.6 - 763.3, 766.2, 766.6, 766.8, 767.25, 767.75, 768.3, 768.5, and 769.25; medium brown sandstone 763.85 - 765.4; fractured at 765.05, 766.2, 768.2.

769.3 - 778.0

Oil shale - medium, with some light, brownish gray; HCl - yes; earthy luster; faintly laminated with common streaked, rare distorted, bedding; solution zones with crystalline calcite, massive pyrite and gilsonite at 711.0, 772.5, 773.75, 774.8, 776.85, and 777.75, appear to be associated with tight fractures, some boxworks present in each zone; pyrite and calcite in tuff at 770.15; fractured 771.1; calcite and pyrite veinlets 772.2 - 773.2, associated with tuffs (?); light gray interbedded tuffs 776.6.

778.0 - 782.95

Oil shale - light to medium brownish gray with some buff; HCl - minor; earthy luster; laminated with rare distorted bedding; gilsonite streak 778.2; light gray blebby tuff at 779.0; from 781.25 - bottom is light gray, calcareous sandstone, fractured at 781.4, 782.15, and 782.8 - 782.95. 779.25 - 779.85 Compressive Strength Sample.

782.95 - 786.05

Oil shale - dark, with some medium, brownish gray; HCl - minor; satiny with some earthy luster; faintly laminated with common streaked and distorted bedding; fractured at top and at 783.7; light gray, irregularly bedded, tuff stringers distorting bedding at 784.7; light brown tuff with calcite filled hairline fractures at 785.0; calcite and pyrite stringers at 785.4 and 785.85.

786.05- 789.1

Sandstone - light gray to light brown; HCl - yes; chalky luster; massive with common distorted bedding; fractured at top, 786.2, and 786.75; light to medium brown oil shale zone 787.2 - 788.0; fractured at 788.5 and 788.7.

789.1 - 797.75

Oil shale - medium to dark brownish gray; HCl - yes; satiny to vitreous, with rare earthy, luster; faintly laminated with some laminations, common streaked and distorted bedding; light gray, interbedded tuff stringers at 790.25; analcitized tuff with dead oil at 791.0; bedding from 792.05 - 793.05 distorted by common analcitized tuff stringers throughout; drilling breakage 793.25 - 793.5; irregular, wavy, medium brown tuff stringers at 794.05; calcite along old fractures 794.5 - 794.7; dark gray, calcareous tuff stringer at 795.6; crystalline calcite with dead oil at 795.8; highly irregular calcite and pyrite with dead oil at 795.0, 796.8 and at bottom.

797.75- 806.95

Oil shale - medium to dark brownish gray, with some light brownish gray; HCl - minor; satiny to vitreous, with rare resinous luster; laminated to faintly laminated with common streaked, rare distorted, bedding; calcite (?) band at 800.7; fractured from 801.9 - 802.3; light gray tuff at 802.95; fractured from 803.25 - 803.7, minor breakage; gilsonite streak at 802.5; light to medium gray and light brownish gray, calcareous, altered tuffs at 804.7 - 804.8 and 805.0 - 805.3.

806.95- 815.6

Oil shale - light, with some medium brownish gray; HCl - yes; earthy luster; laminated to faintly laminated with common streaked bedding; very tight, near vertical, oil stained fractures 807.65 - 808.4; light gray, irregular tuffs, mildly distorting bedding 815.3, 815.4.

815.6 - 833.2

Oil shale - medium, with some dark, rare light, brownish gray; HCl - yes; satiny with some vitreous luster; laminated with common streaked bedding; light gray tuffs with dead oil 816.2 and 816.3; fractured at 817.3; low angle fracture with minor

breakage, no coating 822.8 - 825.0;
fractured at 825.6; medium brown tuff,
distorting lower bedding 829.5 - 829.65;
fractured with minor breakage, no
coating, 832.1 - 832.9.

833.2 - 844.4

Oil shale - medium brownish gray; HCl -
yes; satiny luster; laminated to faintly
laminated with common streaked bedding;
2 fractures, en-echelon, 836.5 - 837.2,
minor breakage, no fracture coating;
light gray, blebby, tuff at 839.2; light
gray tuff blebs at 839.8; analcitized
tuff stringer at 840.0; thin, analcitized
tuff at 842.5; fractured from 842.85 -
844.3, minor breakage, no fracture
coating; gilsonite streak at 843.05;
partially retorted 844.3; light gray,
dolomitized tuff at bottom.

844.4 - 856.75

Oil shale - medium to dark brownish gray;
HCl - yes; satiny to vitreous luster;
laminated with some streaked, rare
distorted, bedding; common analcitized
tuff (?) streaks throughout interval;
common pyrite stringers 845.7 - 845.8;
light gray tuff 847.0 - 847.15, dead
oil stained, mild distortion of upper
bedding, moderate distortion of lower
bedding; thin, light gray, dolomitized(?)
tuff with oil staining at 848.1; light
gray, partially analcitized tuff with
oil staining at 849.7; fractured from
853.1 - 855.55, very minor breakage,
no fracture coating; some pyrite streaks
855.25 - bottom.

856.75- 869.3

Oil shale - medium to dark brownish gray;
HCl - yes; satiny to vitreous luster;
laminated with common loop structures,
streaked and distorted bedding; analcitized
tuff stringers, medium to light gray, at
860.2, 860.55, 860.65, 860.9, and 861.4;
analcitized tuff bleb distorting bedding
at 862.05; light gray tuff stringer with
oil staining at 862.6; thin, buff-colored
tuff at 863.3; irregular light gray tuffs
at 866.2, 866.5, 868, 868.1, 868.55, and
869.15; pyrite stringer at 869.0.

869.3 - 874.3

Oil shale - dark brownish gray with some
medium brownish gray; HCl - minor; vitreous
with some satiny luster; laminated with

some loop structures, common streaked and distorted bedding; light gray, partially analcitized, thin, tuffs at 869.5, 869.8, 870.15, and 871.1; light to medium brown sandstone/siltstone units 871.35 - 872.25, upper and lower bedding highly distorted, common dead oil throughout; sandstone filled, vertical fracture 872.25 - 872.6; medium brown sandstone/siltstone from 873.3 to bottom, one-half of core appears to have flowed along near vertical fracture, oil shale bedding on remaining half of core highly distorted.

874.3 - 877.6

Oil shale - medium to dark brownish gray and black; HCl - minor; vitreous to resinous, with rare satiny, luster; laminated with common loop structures, some streaked, common distorted, bedding; vertical fracture from top to 875.45 and from 875.7 - 877.2, minor breakage, no fracture coating; irregular, blebby, buff-colored tuff at 876.0, distorting upper and lower bedding; two buff-colored tuff stringers at 876.05; 876.25 - 876.6 slump feature with common analcite (?) streaks throughout.

877.6 - 882.1

Oil shale - medium to dark brownish gray; HCl - no; satiny luster, laminated with some loop structures, common streaked, and some distorted, bedding; irregular, medium brown tuff stringer at 878.3; medium gray tuff stringer at 881.05; light gray tuff stringer at 881.5; tuff bleb at 881.6, distorting upper bedding.

882.1 - 889.8

Oil shale - medium to dark brownish gray; HCl - minor; satiny luster; laminated with common loop structures, common streaked and distorted, bedding; light gray tuff stringers at 882.25, 882.55, 883.15, 883.65, 884.7, 885.4, 886.1, 886.3, 886.55, and 889.05; rare pyrite streaks throughout.

889.8 - 891.4

Oil shale - dark brownish gray; HCl - no; vitreous luster; faintly laminated with common streaked and distorted bedding; 890.35 - 890.75 bedding disrupted by crystal growth and flowage; light gray tuff stringers bleeding oil at 891.25, 891.35, and 891.4.

891.4 - 896.6

Oil shale - medium, with rare dark, brownish gray; HCl - minor; satiny luster; laminated to faintly laminated with common streaked, and some distorted bedding; light gray tuff stringers at 891.55, 892.4, 893.0, and 893.2; medium gray, dolomitized (?) tuffs at 893.65 and 894.0, distorting lower bedding; some pyrite streaks 892.2 to bottom; medium gray tuff stringers at 896.4, minor pitting.

896.6 - 898.85

Oil shale - dark brownish gray to black; HCl - No; vitreous luster; faintly laminated with common streaked and distorted bedding; flowage (?) feature at 898.05; some analcite (?) streaks throughout.

898.85- 904.6

Oil shale - light to medium brownish gray; HCl - yes; earthy to satiny luster; faintly laminated with common streaked, rare distorted, bedding; interbedded tuffs with pyrite 900.3 - 900.4; calcareous coated fracture (?) at 900.6; light gray tuff stringers at 902.1, 902.25, 902.45, medium brown tuff at 902.65, tuff stringer at 903.0.

904.6 - 906.15

Oil shale - dark brownish gray to black, with some medium brownish gray; HCl - no; satiny to vitreous luster; streaked bedding with some laminations and faint laminations.

906.15- 910.35

Oil shale - light, medium and dark brownish gray; HCl - minor; satiny with rare earthy luster; laminated with some streaked, common distorted, bedding; moderate drilling breakage from 907.4 - 908.15; some pyrite streaks 907.05 - bottom; analcitized tuff stringer 909.9.

910.35- 912.15

Oil shale - dark brownish gray to black, with some medium brownish gray; HCl - no; vitreous luster; laminated with some loop structures, some streaked, common distorted, bedding; analcitized tuff stringers, minor pitting at 910.7.

912.15- 925.75

Oil shale - medium brownish gray with some light brownish gray; HCl - minor to yes; satiny with some earthy luster;

laminated with some loop structures, common streaked, some distorted bedding; interbedded tuff stringers with pyrite at 912.75 and 913.55; interbedded light gray tuff, 914.6; light to medium brown tuff with dead oil, distorting lower bedding at 919.05; blebby analcitized tuff distorting bedding at 920.95; interbedded analcitized tuffs distorting bedding 922.15 - 922.3; medium brown tuff 922.9; medium brown tuff, minor pitting and distortion of lower bedding at 923.6 - 923.7; highly irregular medium brown tuff at 923.8; light gray tuff stringer bleeding oil at 924.1.

925.75- 928.2

Oil shale - dark brownish gray with some medium brownish gray; HCl - no; vitreous luster; laminated with common loop structures and distorted bedding; blebby and irregular light gray tuffs 927.9 - 928.0, distorting bedding.

928.2 - 934.7

Oil shale - medium brownish gray with some light and dark brownish gray; HCl - minor; satiny with some vitreous luster; laminated with common streaked and distorted bedding; irregular medium gray tuff at 930.1 with some stringers to 930.35; interbedded soft tuffs, partially altered with dead oil and moderate pitting 932.0 - 932.4; crystal growth at 934.0, highly distorting upper and lower bedding, some slumpage of upper bedding.

934.7 - 949.55

Oil shale - medium to dark brownish gray with some light brownish gray; HCl - no; satiny luster; laminated to faintly laminated with common streaked, some distorted bedding; light gray tuff stringers at 935.7, 936.55, 936.85, and 937.2; medium brown tuff at 939.55; medium gray tuff at 939.85; wavy, light brown, thin tuff at 940.35; light gray tuff stringer at 942.1; solution vug at 945.1; medium brown tuff at 945.15, 945.4, and 946.5; medium brown tuff stringers distorting bedding 947.45 - 947.8; irregular medium brown tuff at 947.85, distorting bedding; medium brown tuff 947.9 to 948.25, 948.3 - 948.45; medium brown thin tuff at 948.75 and at 948.9 - 949.05; medium brown tuff stringers at 949.15, 949.4, and 949.55.

949.55- 965.4

Oil shale - medium to dark brownish gray; HCl - yes; satiny luster; faintly laminated with common streaked bedding; zone of light gray, irregular tuffs 952.25 - 952.45; medium to light brown, thin tuff at 955.05, mild distortion of lower bedding; medium brown tuff with moderate pitting 958.9 - 959.0; medium brown, analcitized tuffs with dead oil at 963.15 and 963.45; light gray stringer with dead oil 963.85; interbedded dolomite (?) at 965.35; common light gray tuff streaks and stringers throughout interval. 960.05 - 960.55 Compressive Strength Sample.

965.4 - 982.8

Oil shale - medium to dark brownish gray; HCl - yes; satiny luster; faintly laminated with common streaked bedding; common drilling breakage 968.9 - 973.45; medium brown tuff with some dead oil 970.65 - 970.75; thin, medium gray tuff at 971.8; some buff-colored siltstones 972.15 - 972.8, moderate solution; thin analcitized tuff stringer 977.6; crystal growth 980.3, distorting lower bedding; thin, medium brown, analcitized tuff 981.2; light gray tuff stringers and streaks 981.75 - 981.95 and 982.2.

982.8 - 985.4

Tuff with some oil shale - light to medium brown with some light brownish gray; HCl - minor; highly contorted and distorted bedding; common dolomite (?) throughout, common analcite; core bleeding oil. WAVY BED (?)

985.4 -1006.15

Oil shale - medium with some dark brownish gray; HCl - yes; satiny luster; faintly laminated with common streaked bedding; interbedded light gray tuffs 987.6, 984.25, 984.45, 998.85, and 1004.2; shattered and recemented zone with dolomite (?), gilsonite and tuff, 1000.15 - 1000.7.

1006.15-1025.1

Oil shale - medium to dark brownish gray, with rare light brownish gray; HCl - no to minor; satiny to vitreous luster with rare earthy luster; laminated to faintly laminated with common streaked bedding; fractured 1007.15, no breakage, minor fracture coating; common light brownish gray, silty zones 1014.1 -

1015.55; gilsonite stringer 1012.8;
rare, light to medium gray tuff stringers
throughout.

1025.1 -1029.85

Oil shale - medium to dark brownish gray
with rare light brownish gray and buff;
HCl - minor to yes; satiny to vitreous
and resinous luster with rare earthy
luster; laminated to faintly laminated
with rare loop structures, common streaked
and some distorted bedding; algal zone (?)
at 1029.1 - 1029.7; medium brown tuff
stringer at 1025.3, mild distortion of
bedding; oil stained tuff stringer at
1025.4; medium brown, blebby tuff stringer
at 1025.55; thin, medium gray tuff at
1029.1; blebby light brown tuff at 1029.2.

1029.85-1041.9

Oil shale (lean), with some siltstone -
buff to light brownish gray with some
medium, and rare dark, brownish gray;
HCl - yes; laminated with some distorted
bedding; tuff stringers with calcite and
pyrite 1033.35, 1033.5 - 1033.55, and
1034.0; fractured at 1034.8, minor
breakage, dolomitic (?) fracture coating;
bedding highly distorted by buff to light
gray tuff at 1035.2 - 1035.4; fractured
at 1035.45 and 1035.55, minor breakage,
slightly calcareous fracture coating;
fractured at 1036.9, tight fracture,
slightly calcareous coating; 1040 - 1041,
bedding highly distorted by crystal
growths, common pyrite, and probable
fractures. 1039.45 - 1040.0 Compressive
Strength Sample. "A" GROOVE

1041.9 -1047.5

Oil shale - buff to light, medium and
dark brownish gray; HCl - minor; earthy
to vitreous luster; laminated with color
banding, common distorted bedding;
irregular, medium brown analcitized tuff
1044.2 - 1044.45, distorting upper and
lower bedding; medium brown tuff at
1046.05, mild distortion upper and lower
bedding; 1047.15 - 1047.5, light to
medium brown analcitized, irregular tuffs
highly distorting bedding; common tuff
streaks and stringers, distorting bedding
throughout.

1047.5 - 1052.0

Oil shale - medium to dark brownish gray; HCl - no; vitreous to resinous luster; laminated with common distorted bedding; common, irregular, tuff blebs, streaks and stringers, highly distorting bedding throughout. 1049.1 - 1049.7 Compressive Strength Sample. 1050.45 PARTING SURFACE

1052.0 - 1059.2

Oil shale - medium brownish gray with some medium brown and rare light brownish gray bands; HCl - minor; satiny luster; laminated to faintly laminated with common streaked, rare distorted bedding; medium gray, irregular, thin, analcitized tuff at 1052.65; rare light gray tuff streaks and stringers throughout.

1059.2 - 1059.7

Tuff - medium gray; HCl - no; chalky luster; minor distortion of upper bedding; some dead oil. MAHAGONY MARKER.

1059.7 - 1062.9

Oil shale - medium brownish gray; HCl - minor; satiny luster; laminated with common distorted bedding; common pyrite streaks and stringers throughout; slightly calcareous, light gray, tuff stringer at 1062.65.

1062.9 - 1067.1

Oil shale - medium brownish gray with some light and dark brownish gray; HCl - minor; satiny luster; laminated with rare loop structures; common streaked, rare distorted bedding; algal zone (?) top to 1063.3; medium brown, blebby tuff at 1065.1 and 1066.45; rare tuff streaks and stringers throughout.

1067.1 - 1077.85

Oil shale - dark brownish gray to black with common medium brownish gray; HCl - no to minor; satiny to resinous, with rare waxy luster; faintly laminated with common streaked and distorted bedding, some loop structures; light gray interbedded tuff 1067.9 - 1068.0; medium brown, analcitized tuff 1068.55 - 1068.65, distorting lower bedding; 1071.5 - 1072.3 has 10 buff bands (Mahagony bed); flowage feature 1072.6 - 1072.7; irregular, medium gray tuff 1076.75; some tuff streaks and stringers 1074.0 - bottom. MAHAGONY BED.

1077.85-1088.15

Oil shale - medium to dark brownish gray; HCl - minor to yes; satiny to vitreous, with rare resinous luster; laminated to faintly laminated with rare loop structures, common streaked and distorted bedding; light gray, analcitized tuff stringer 1086.2; some light gray, interbedded tuff blebs 1085.0 - bottom.

1088.15-1091.45

Oil shale - medium to dark brownish gray; HCl - no to minor; satiny to vitreous luster; laminated with common distorted bedding; appears color banded by alternating medium and dark brownish gray zones, irregular, medium gray tuff 1089.9 - 1090.0, lower bedding distorted; blebby, medium brown tuff stringer 1090.2; probable pyrite filled 10° fracture 1090.8 - 1091.0; common pyrite streaks and stringers 1090.75 - bottom.

1091.45-1094.0

Oil shale - medium brownish gray; HCl - minor to yes; satiny luster; laminated with common streaked bedding; common medium greenish brown streaks and stringers throughout.

1094.0 -1098.1

Oil shale - medium brownish gray, with some dark brownish gray; HCl - minor to yes; satiny with some vitreous luster; laminated to faintly laminated with common streaked bedding; medium brown, partially analcitized, tuff stringer with some dead oil, 1094.35 and 1095.35.

1098.1 -1099.6

Oil shale - dark brownish gray; HCl - no; vitreous luster; laminated with rare distorted bedding; buff colored tuff stringer at 1099.05; light brown tuff with blebby tuff immediately above 1099.2 - 1099.3; irregular, light brown blebby tuffs at 1099.5 and 1099.8, distorting upper and lower bedding.

1099.6 - 1111.9

Oil shale - medium to dark brownish gray with rare light brownish gray; HCl - minor; satiny to vitreous luster; streaked bedding with some faint laminations, some distorted bedding; boxworks 1105.7 - 1105.8 with some residual pyrite, probable nahcolite zone; core jumbled 1107.6 - 1108.1, missing interval probable nahcolite zone; soft, buff colored tuff at bottom, heavy solution. 1108.1 - 1110.0 missing.

1111.9 -1126.0

Oil shale - medium, with some light and dark brownish gray; HCl - minor to yes; satiny luster; laminated with common streaked, some distorted bedding; fractured 1113.1, minor breakage, calcareous coating; partially retorted 1113.8 - 1114.15; medium brown tuff at 1118.25, dead oil, moderate distortion of lower bedding; medium gray, blebby tuff 1118.5, mild bedding distortion; irregular, light gray tuff, 1120.3, minor pitting, minor bedding distortion; bedding plane fracture 1120.4, calcareous coating; irregular, medium brown tuff 1122.9, some dead oil, minor pitting; medium to dark brown tuff 1124.45 - 1124.65; some pyrite streaks and stringers 1124.0 - bottom.

1126.0 -1133.9

Oil shale - medium to dark brownish gray with rare light brownish gray; HCl - minor to yes; satiny with some vitreous luster; laminated with some loop structures, and some distorted bedding; algal (?) zones 1126 - 1127 and 1130.95 - 1131.9; medium brown tuff stringer at top, some tuff blebs and stringers throughout; irregular light brown tuff with dead oil 1133.0; common pyrite streaks and stringers 1127.5 - 1130.1.

1133.9 -1149.6

Oil shale - light to medium brownish gray, with some dark brownish gray; HCl - minor; earthy to satiny, with rare vitreous luster; laminated with common distorted bedding; jumbled at 1134.5; crystal growth at 1134.75, heavy solution and distortion of bedding; heavy pitting of core 1134.7 - 1136.0, probable fractures throughout; medium brown tuff 1136.55 - 1136.85, moderate distortion upper bedding, heavy distortion lower; interbedded medium brown tuffs distorting bedding, some solution 1138.1 - 1138.5; medium brown tuff 1138.5 - 1139.1, upper bedding distorted; 1140.0 - 1143.55, common calcareous filled, tight fractures with common interbedded tuff stringers, some solution; medium brown tuff 1143.35; 1143.55 - 1146.2, bedding 20° from horizontal, heavy solution with common bedding plane fractures; 1146.2 - 1147.25, bedding is vertical to near-vertical with heavy solution of crystal zones and fractures (?).

1149.6 -1154.55

Oil shale (lean) with some interbedded siltstones - buff to light brownish gray with some medium brownish gray; HCl - yes; earthy luster; laminated (Color banding); medium gray tuff 1150.8 - 1151.0 and 1152.9 - 1153.1, mild bedding distortion; light gray to white tuff stringer 1151.7, moderate solution; fractured 1153.3, and at bottom, mild breakage, calcareous coating. 1152.35 - 1152.85 Compressive Strength Sample. BOTTOM MAHAGONY ZONE.

1154.55-1167.1

Siltstone - light gray to light brownish gray; HCl - minor; chalky luster; massive with some laminations, common distorted bedding; fractured from top to 1157.25, moderate breakage, no fracture coating, common secondary fractures in interval; jumbled to 1158.65 with common solution of soft, light gray tuffs; 1158.65 - 1161.0, heavy pitting of crystal (?) growths with common fractures and pyrite throughout; tight fractures at 1161.2, 1161.5, 1161.7, and 1162.1; large fracture 1162.2 to top of missing interval, heavy breakage, light gray fracture coating; jumbled 1164.0 - 1164.7, probable fractures; bedding inclined to 10° from vertical 1165.0 - 1165.6 by crystal growths (?). heavy solution and some tight bedding fractures; 1165.6 - 1166.0, bedding inclined 30° from vertical with bedding fractures and heavy solution and pitting; brown tuff 1166.0 - 1166.6 and 1166.85 - 1166.9; fractured 1166.7. 1162.8 - 1164.0 missing. "B" GROOVE.

1167.1 -1175.9

Oil shale - light, medium and dark brownish gray; HCl - minor; earthy, satiny with some vitreous luster; laminated with common distorted bedding; minor solution of crystal growths (?) 1168.3 and 1170.75; 1170.75 - 1172.2, bedding inclined 20° from horizontal, medium brown tuff at 1171.55 with common light gray tuff stringers interbedded to 1171.9; orangish brown tuffs 1173.55 - 1173.7, 1174.2 - 1174.3 and 1175.7 - 1175.9; light gray tuff stringer at 1174.5. 1167.2 - 1167.75 Compressive Strength Sample. TOP R-6

1175.9 -1183.5

Oil shale - buff to light and medium brownish gray; HCl - yes; earthy luster; laminated with rare distorted bedding; some pyrite streaks and stringers to 1178.2; heavy solution of dark gray tuff 1178.6 - 1178.8, moderate distortion of lower bedding; some pitting of tuff stringer 1178.95; heavy solution and pitting of medium brown tuff with crystal growths 1179.05 - 1179.25; core jumbled below missing interval; minor solution vug 1180.15; light gray tuff stringer 1182.3. 1179.25 - 1179.6 missing.

1183.5 -1192.25

Oil shale - light to medium brownish gray with rare dark brownish gray and rare buff stringers; HCl - no; earthy with some satiny luster; laminated with rare loop structures, rare distorted bedding; fractured at 1186.05 with minor breakage, no fracture coating; light brown tuff, 1187.3; fractured at 1190.2, with minor breakage, dolomitic (?) fracture coating; fractured 1191.15, breakage on fracture plane only, dolomitic coating; medium brown tuff 1191.35 - 1191.65, minor distortion of lower bedding.

1192.25-1203.35

Oil shale - medium to dark brownish gray; HCl - no; satiny to vitreous luster; laminated with common streaked and distorted bedding, common algal (?) zones; rich shale zones separated by buff to light brownish gray and light gray lean zones at 1192.25 - 1194.4, 1194.5, 1196.25 - 1197.15, and 1198.75 - 1200.3; medium brown tuff at 1198.55, distorting lower bedding; fracture traces 1199.4 - 1200.3.

1203.35-1208.25

Oil shale - medium brownish gray; HCl - no to minor; satiny luster; laminated to faintly laminated with common streaked bedding; minor fracture at top, minor breakage, no fracture coating; dark brown, analcitized tuff at 1203.9.

1208.25-1219.2

Oil shale - light, medium and dark brownish gray; HCl - no to minor; earthy to vitreous luster; laminated with common distorted bedding; alternating rich and lean zones; minor fracture 1210.15; fractured at 1212.8, breakage on fracture plane only, no fracture coating; 1216.0 -

1216.9 common light gray tuff stringers, mild distortion of bedding; fractured 1218.55, breakage on fracture plane only, no fracture coating.

1219.2 -1224.15

Siltstone and oil shale - light to medium gray and bluish gray with light to medium brownish gray; HCl - no; chalky to earthy luster; laminated with rare distorted bedding; fractured at 1220.55, white, noncalcareous fracture coating; fracture sets with fractures at 1220.85, 1221.05, 1221.1, and 3 fractures at 1221.4, minor breakage, no fracture coating; fractured at 1223.5, breakage on fracture plane only, no fracture coating; en-echelon fractures 1224.0 to bottom.

1224.15-1231.55

Oil shale - medium to dark brownish gray; HCl - no; satiny to vitreous luster; faintly laminated with some laminations, common streaked and distorted bedding; fractured at 1226.35, 1226.75, 1228.6, and 1229.0, all fractures have minor breakage, no fracture coating; medium brown tuff 1229.9 - 1230.15, minor distortion lower bedding.

1231.55-1237.8

Oil shale and siltstone - buff to light brownish gray with some medium brownish gray; HCl - yes; chalky to earthy luster; laminated; very tight fracture 1234.4; fractured at 1236.2 and 1236.35 - 1236.65, moderate breakage, pyritic fracture coating; oil shale with crystal growths dissolved 1237.05 - bottom; fractured at bottom, moderate breakage, no fracture coating.

1237.8 -1242.2

Oil shale - dark brownish gray with rare medium brownish gray; HCl - no; vitreous to resinous luster; streaked bedding, rare faint laminations; slickensides from top to 1238.8 at intersecting angles, movement up/down; medium brown tuff at 1239.4, moderate distortion of lower bedding.

1242.2 -1252.0

Oil shale - medium brownish gray with some medium brown and light brownish gray; HCl - no to minor; earthy to satiny luster; laminated to faintly laminated with common streaked bedding; fractured

at 1242.3, 1242.5, and 1242.75, breakage on fracture plane only, no fracture coating; fractured at 1244.3, breakage on fracture plane only, no fracture coating; some pyrite streaks and stringers throughout, common from 1250.45 to bottom; tight fracture trace 1251.8.
1244.4 - 1244.9 Compressive Strength Sample

1252.0 -1256.5

Oil shale and siltstone - buff to light brownish gray with some medium brownish gray; HCl - yes; chalky to earthy luster; laminated with some distorted bedding; fractured 1254.9, breakage on fracture plane only, pyritic fracture coating; orangish brown tuff stringer 1255.8.

1256.5 -1261.4

Oil shale - medium brownish gray with rare light brownish gray; HCl - no; satiny luster; laminated; common pyrite streaks and stringers throughout.

1261.4 -1272.1

Siltstone with some oil shale, rare fine grained sandstone - light to medium gray and light brownish gray; HCl - minor; chalky luster; laminated with common distorted bedding; fractured at 1264.3, breakage on fracture plane only, no fracture coating; vertical fracture from 1268.15 - 1269.05 and from 1269.2 - 1269.55, moderate breakage, no fracture coating; minor pitting 1269.15 to bottom; 1270.05 - bottom, some breakage and jumbling, probable fractures; crystal growth at 1271.5.

1272.1 -1277.0

Oil shale - medium brownish gray with rare dark brownish gray; HCl - no; satiny luster; streaked bedding, with some faint distorted laminations; en-echelon fractures 1273.45, breakage on fracture plane only; medium gray tuff stringer 1274.35; some medium gray tuff streaks and stringers 1274.4 to bottom.

1277.0 -1290.7

Oil shale - buff to light brownish gray with common medium brownish gray; HCl - minor to yes; earthy with some satiny luster; laminated to faintly laminated; common pyrite streaks, stringers and blebs throughout; fractured with solution along fracture plane at 1278.3; fractured

at 1278.7, 1279.6, 1279.85, 1281.25, 1281.65, 1282.35, 1286.55, and 1288.9, breakage on fracture plane only, common pyritic fracture coating.

1290.7 -1298.0

Oil shale - medium brownish gray; HCl - minor; earthy to satiny luster; laminated to faintly laminated with some distorted bedding; heavy solution with some boxworks, top to 1291.2; bedding plane solution 1291.45 - 1291.65; 1291.7 - 1292.2, some solution pitting; 1293.0 - 1294.55, some solution pits with pyrite, boxworks at 1294.55; fractured 1294.55 - 1295.0; at 1295.1, and 1295.5, some solution along fracture planes; boxworks 1296.0; 1297.5 - bottom fractured, breakage on fracture plane only; minor solution at bottom. BOTTOM "R-6".

TOTAL DEPTH